



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/831,887	05/23/2001	Yasutaka Ito	20523US0PCT	8002
22850	7590	07/11/2005	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			FASTOVSKY, LEONID M	
			ART UNIT	PAPER NUMBER
			3742	
DATE MAILED: 07/11/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/831,887	ITO ET AL.	
	Examiner Leonid M. Fastovsky	Art Unit 3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 31 March 2005.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-5,7-9,11-24 and 27-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-5,7-9,11-24 and 27-32 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 24 September 2004 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____. | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Double Patenting

1. Claims 1-5, 7-9, 11-24 and 27-32 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-28 of copending Application No. 10/387,452. Although the conflicting claims are not identical, they are not patentably distinct from each other because they claim the same structure elements of the invention except a disc shape of the ceramic substrate. It would be obvious to modify the present invention to include a disc shape of the ceramic substrate in order to diversify use of the ceramic heater.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-4, 9, 21-23 and 27-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Kawada et al (5,665,260).

Kawada teaches a ceramic heater (Fig. 1) for heating a semiconductor wafer (col. 1, lines 5-15), comprising a ceramic substrate with thickness of 1 mm (col. 4, lines 57-60), having a work surface (i.e. such as a supporting substrate covered by electrodes for

Art Unit: 3742

electrostatic chuck and a covering layer) which is configured to face a work to be heated, and the heat generating layer disposed in the ceramic substrate, wherein the work-heating surface has a surface roughness of Rmax of 5 micron or larger (Abstract), (col. 4, lines 57-60).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 5, 7, 11, 24, 30 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawada in view of Noda et al.

Kawada discloses substantially the claimed invention including the thickness of the substrate of 1mm, but does not disclose that a nitride ceramic contains one of the elements selected from Na, B, Y, Li and Ca and weight of elements Y, Ca is not less than 0.1%. Noda et al discloses a weight of element Y to be in a range of 0.3 to 13% (col. 13, lines 35-55). It would have been obvious to one having ordinary skill in the art to modify the invention of Kawada to use elements Y or Ca by weight to improve the relative density and durability as taught by Noda et al (Col. 9, lines 22-26).

As for claim 30, the ceramic substrate contains elements Ca and Y that are not dominant constituent elements.

6. Claims 8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawada in view of Yamada et al.

Kawada teaches substantially the claimed invention, but does not disclose that a weight of elements Na and B is not less than 0.05 ppm. Yamada et al teaches in Col. 4, lines 42-49 minimizing the amount of metal and other elements belonging to Groups 1a VIIa, VIII, Ib and IIb and IVb respectively to less than 100 ppm. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Na or B in Kawada's invention in the amount of not less than 0.05 ppm in order to control a volume of resistivity as taught by Yamada (Abstract).

7. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawada in view of Ushikawa.

Kawada discloses substantially the claimed invention, however Kawada does not disclose that a semiconductor wafer is heated while being supported by pins at a distance of 1 micron to 5000 microns (5 mm) apart from the work-heating surface of the ceramic heater. Ushikawa discloses pins 41, 42 and 43 supporting a wafer W at a distance of from 0.2 mm to 2 mm (Col. 4, lines 30-44). It would have been obvious to one having ordinary skill in the art to modify the invention of Kawada to use supporting pins at a distance from 1 micron to 5000 micron in order to improve a process of wafers heating as taught by Ushikawa (Abstract).

8. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawada in view of Noda and further in view of Ushikawa.

Art Unit: 3742

Kawada in view of Noda discloses substantially the claimed invention, however Kawada does not disclose that a semiconductor wafer is heated while being supported by pins at a distance of 1 micron to 5000 microns (5 mm) apart from the work-heating surface of the ceramic heater. Ushikawa discloses pins 41, 42 and 43 supporting a wafer W at a distance of from 0.2 mm to 2 mm (Col. 4, lines 30-44). It would have been obvious to one having ordinary skill in the art to modify the invention of Kawada in view of Noda to use supporting pins at a distance from 1 micron to 5000 micron in order to improve a process of wafers heating as taught by Ushikawa (Abstract).

9. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawada et al in view of Nozaki et al.

Kawada discloses substantially the claimed invention, but does not disclose a thermal conductivity of a ceramic substrate. Nozaki discloses that the thermal conductivity of a ceramic heater is about 170 W/mK (Col 7, lines 1-5). It would have been obvious to one having ordinary skill in the art to modify Kawada's invention to include a thermal conductivity in a range from 130 to 200 W/mK because the aluminum nitride is the highest in these thermal coefficients as taught by Nozaki.

10. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawada in view of Noda and further in view of Nozaki.

Kawada in view of Noda discloses substantially the claimed invention, but does not disclose a thermal conductivity of a ceramic substrate. Nozaki discloses that the thermal conductivity of a ceramic heater is about 170 W/mK (Col 7, lines 1-5). It would have

been obvious to one having ordinary skill in the art to modify Kawada's invention in view of Noda to include a thermal conductivity in a range from 130 to 200 W/mK because the aluminum nitride is the highest in these thermal coefficients as taught by Nozaki.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Response to Arguments

12. Applicant's arguments with respect to claims 1-5, 7-9, 11-24 and 27-28 have been considered but are moot in view of the new ground(s) of rejection.

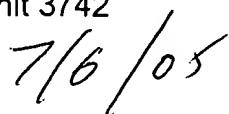
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid M. Fastovsky whose telephone number is 571-272-4778. The examiner can normally be reached on M-Th. 8.00 am -6.00 pm.

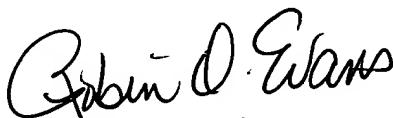
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on 571-272-4777. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Leonid M Fastovsky
Examiner
Art Unit 3742

lmf




ROBIN O. EVANS
PRIMARY EXAMINER
